In the Claims:

1 – 23. (Cancelled)

24. (Currently Amended) A system ~~according to claim 20, further~~ for predicting likely liver toxicity as a side effect of application of a pharmaceutical substance, the system comprising:

an input device for obtaining blood levels of ALT and AST respectively,

a comparator, associated with said input device for comparing said respective levels of ALT (alanine aminotranferase) and AST (aspartate aminotransferase) to produce a ratio of said levels,

a predictor associated both with said input device and said comparator, and including a statistical model, for predicting, from application of said levels and said ratio therebetween to said statistical model, a likelihood of development of liver toxicity, said predictor set to conclude from low ALT and AST levels and a ratio close to 1, that a likelihood of development of liver toxicity is low, and

a thresholder for setting a threshold likelihood, above which application of said pharmaceutical substance is to be discontinued.

25. (Cancelled)

26. (Currently Amended) A method ~~according to claim 25,~~ for modeling an interaction between at least one biological system and at least one pharmaceutical substance, the method comprising:

building a state diagram of states of said interaction,

entering at least one of inputs to said states and interactions relationships between said states,

defining at least one output from at least one of said states,

obtaining empirical data regarding said interaction,

randomly dividing said empirical data ~~set~~ into at least two data sets,

carrying out data mining on one set of said empirical data to assign at least one of values to said relationships and functions to said states, thereby to obtain a quantitative model of said interaction; and

~~performing said data mining using only one of said sets,~~

testing said model using a remaining one of said sets to ensure that said data has not been overfitted.

27. (Cancelled)